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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,081	11/26/2003	Sadao Kadokura	032120	7841

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EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT PAPER NUMBER

1753

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/721,081	Applicant(s) KADOKURA ET AL.	
	Examiner Rodney G. McDonald	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 13-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 is indefinite because it is unclear whether the claim is a process or apparatus. It is suggested to write this claim in method form incorporating the limitations of the apparatus.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 11-14 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadokura (2003-155564) in view of Kadokura et al. (U.S. Pat. 4,784,739).

Regarding claim 1, Kadokura '564 teach a box facing targets sputtering apparatus in a vacuum chamber. (See Machine Translation paragraph 0020; Fig. 6; Fig. 1) The sputtering unit can be a rectangular parallelepiped with six face. (See Figs. 6 and 7) There can be an opening face. (See Fig. 6) There is a pair of facing target units. (See Figs. 6 and 7) There is a frame 71. (See Machine translation 0019) Each target is installed with magnets. (See Fig. 4; See Machine translation paragraph 0013) The

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magnetic means generates the facing mode magnetic field and the magnetron magnetic field required by the claims. (See Abstract) The frame is shutted up by members 83a, 83b, and 83c. (See Machine translation paragraph 0024) A substrate can be provided to be coated upon. (See Fig. 6)

Regarding claim 2, Kadokura '564 teach pair of facing target units comprises a support which receives a target at the center thereof. (See Fig. 6 target 110a) There is an accommodating section for accommodating a permanent magnet 130a in a peripheral wall. (See Fig. 4) There is also an electron reflecting means 171a at the front end portion of the peripheral wall. (See Fig. 4; See machine Translation 0011)

Regarding claims 11 and 12, Kadokura '564 a permanent magnet is provided to adjust the magnetic field of the magnetron mode. (See Abstract)

Regarding claims 13 and 14, Kadokura '564 teach that their invention intends to improve the prior art when depositing oxide thin films. (See Paragraph 0003)

Regarding claim 20, Kadokura '564 teach forming the films at low temperature. (See Paragraph 0003) This is believed to encompass room temperature.

Regarding claim 21, Kadokura '564 teach the sputtering can be DC voltage. (See Figs. 1. and 2)

The difference not yet discussed is an auxiliary electrode to absorb electrons in a plasma confinement space being provided in the interior of the sputtering unit (Claim 1), locating the auxiliary electrode in front of the electron reflecting means is not discussed (Claim 3), locating the auxiliary electrode in the vicinity of a center line of the plasma confinement space is not discussed (Claim 4), the center line extending along a

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direction parallel to the longer sides of the targets is not discussed (Claim 5), and the substrate being an organic substrate is not discussed (Claim 22).

Regarding claims 1 and 3, Kadokura et al. '739 teach providing an anode electrode 130 in the shape of a ring arranged around the front of the reflecting electrode 110. According to this arrangement of the anode electrode 130, the amount of capturing of electrons during the sputtering can be easily controlled. (Column 7 lines 52-64)

Regarding claims 4 and 5, Kadokura et al. '739 teach locating the anode electrode in the plasma confinement space near the center line. (Column 7 lines 52-64)

Regarding claim 22, Kadokura et al. '739 teach depositing on an organic substrate. (Column 16 lines 57-58)

The motivation for utilizing an anode electrode in a facing target sputtering device is that it allows for capturing electrons. (Column 7 lines 52-64)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Kadokura '564 by utilizing an auxiliary electrode as taught by Kadokura et al. '739 because it allows for capturing electrons.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadokura '564 in view of Kadokura et al. '739 as applied to claims 1-5, 11-14 and 20-22 above, and further in view of Kiyota et al. (U.S. Pat. 6,685,805).

The differences not yet discussed is the depositing of the compound oxide film from an oxide target with an inert gas containing oxygen at 1% or less by volume (Claim

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15), the oxide film being transparent electrically conductive (Claim 16), the oxide film being indium tin oxide (Claim 17).

Regarding claim 15, Kiyota et al. teach sputtering a compound oxide film from an oxide target with argon and oxygen mixed gas. The oxygen amount can be 1% or less by volume. (Column 4 lines 55-59; Column 8 lines 15-17)

Regarding claim 16, Kiyota et al. teach that the film can be transparent electroconductive. (Column 3 lines 19-25)

Regarding claim 17, Kiyota et al. teach that the oxide film can be indium tin oxide film. (Column 4 lines 26-27)

The motivation for depositing a transparent electroconductive compound oxide film is that it allows for forming a touch panel. (Column 1 lines 13-16)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited the compound oxide film from an oxide target with an inert gas containing oxygen at 1% or less by volume, deposited an oxide film of transparent electrically conductive material and deposited an oxide film of indium tin oxide as taught by Kiyota et al. because it allows for the deposition of a touch panel.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadokura '564 in view of Kadokura et al. '739 as applied to claims 1-5, 11-14 and 20-22 above, and further in view of Kim (U.S. Pat. 5,240,581).

The differences not yet discussed is the deposition of a nitride film from a target containing the nitride constituting element in a sputtering gas containing oxygen at 1 vol% or less (Claim 18) and the deposition of silicon nitride (Claim 19).

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Regarding claims 18 and 19, Kim teach depositing a nitride film from a target containing a nitride constituting element in a sputtering gas of argon and nitrogen. No oxygen is in the gas thus suggesting Applicant's value of 0% by volume oxygen. The film deposited is silicon nitride. (Column 4 lines 10-27)

The motivation for depositing a silicon nitride film is that it allows for depositing a protective layer on a magneto-optical disk. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited a nitride film from a target containing the nitride constituting element in a sputtering gas containing oxygen at 1 vol% or less and to have deposited silicon nitride as taught by Kim because it allows for depositing a protective layer on a magneto-optical disk.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadokura '564 in view of Kadokura et al. '739 as applied to claims 1-5, 11-14 and 20-22 above, and further in view of Madocks (US 2004/0149574).

The differences not yet discussed is the shape of the electrode and the attaching of the electrode to the closure pipe.

Madocks teach an anode with a U-shape. (See Fig. 1) The anode must inherently attach to a member of the apparatus and in Kadokura '564 this would have to be the closure plate. (See Kadokura '564 discussed above)

The motivation for utilizing a U-shape electrode and attaching the electrode to the closure pipe is that it allows for trapping the electron hall current. (See Abstract)

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a U-shape electrode and attached the electrode as taught by Madocks because it allows for trapping electrons.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,881,311 in view of Kadokura et al. (U.S. Pat. 4,784,739) and Madocks (US PG Pub 2004/0149574).

Claims 1-25 of U.S. Pat. No. 6,881,311 teach the claimed except for the auxiliary electrode which absorbs electrons.

Kadokura et al. is discussed above and teach providing an auxiliary electrode to absorb electrons in the apparatus.

The motivation for providing an auxiliary electrode in a facing targets sputtering apparatus is that it allows for capturing electrons. (See Kadokura et al. discussed above)

Madocks is discussed above and also suggest the shape of an anode. (See Madocks discussed above)

The motivation for providing a shaped anode is that it allows for capturing electrons. (See Madocks abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have modified U.S. Pat. No. 6,881,311 by providing an auxiliary electrode to absorb electrons as taught by Kadokura et al. and Madocks because it allows for capturing electrons.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
August 18, 2005